

## **APPENDIX S**

### **RIPARIAN AND ESTUARINE/BEACH BIOLOGICAL OPINION: REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS**

The following sections are excerpted from the USFWS Riparian and Estuarine/Beach Biological Opinion (1-6-95-F-02). Page and section references referred to in the text correspond to pages and sections within that document unless otherwise noted.

#### **REASONABLE AND PRUDENT MEASURES (PAGES 31-32)**

The following reasonable and prudent measures are necessary and appropriate to minimize the impact of incidental take. The measures below are nondiscretionary and must be undertaken by the Marine Corps.

1. The Marine Corps will adopt and implement the Riparian Habitat Conservation Plan, as specified in Section 4.1 of the BA and in the Project Description (Appendix 1) of this Opinion, including the programmatic instructions to regulate all training & other mission-related operations, Base infrastructure maintenance, and recreational activities, in and adjacent to riparian habitats to help ensure that the population and habitat goals are achieved and the impact of incidental take is avoided and minimized to the maximum extent practicable.
2. The Marine Corps will adopt and implement the Estuarine/Beach Ecosystem Conservation Plan, as specified in Section 4.2 of the BA and in the Project Description (Appendix 1) of this Opinion, including the programmatic instructions to regulate all training and other Mission-related operations, Base infrastructure maintenance, and recreational activities, in and adjacent to estuarine/beach habitats to help ensure that the population and habitat goals are achieved and the impact of incidental take is avoided and minimized to the maximum extent practicable.
3. The Marine Corps will institute a monitoring program to assess the effectiveness of the programmatic ecosystem conservation plans based on high resolution aerial photography, GIS maps/data, and ground-truthing techniques, and reliable population censusing methods. The elements of this monitoring program are specified in Appendix 4. This monitoring program should accommodate an adaptive management approach.
4. The Marine Corps will take measures to assess threats to the survival and recovery of the tidewater goby and arroyo toad on Base.
5. The Marine Corps will continue to examine the environmentally least damaging alternative in the further planning stages of the SMR Flood Control - Construction

Flood Levee/Wall Project and all other activities and construction projects involving the permanent loss of riparian and estuarine/beach habitat.

6. The Marine Corps will develop and implement a monitoring program that tracks compliance with the levels of take, and the measures and terms and conditions of the Incidental Take Section of this Opinion.

## **TERMS AND CONDITIONS (PAGES 32-37)**

To be exempt from the prohibitions of section 9 of the Act, the following terms and conditions, which implement the reasonable and prudent measures described above, must be complied with in their entirety.

1. To assure the implementation of reasonable and prudent measure #1 above, the Marine Corps shall:
  - (a) Adopt and implement the Riparian Ecosystem Conservation Plan, as specified in Section 4.1 and 4.3 of the BA and outlined in the Project Description (Appendix 1) of this BO, and as modified in Appendix 5, including the programmatic instructions to regulate all training & other mission-related operations, infrastructure maintenance, and recreational activities which affect riparian habitats on Base.
  - (b) Obtain concurrence from the Service that impacts are adequately offset by the Riparian Ecosystem Conservation Plan for any activity not specifically addressed in the Programmatic Instructions or otherwise covered herein.
  - (c) Develop and implement mitigation measures (e.g., habitat enhancement) for future proposed training and maintenance actions (i.e., those not addressed in this Opinion) that may affect listed species or riparian habitat. Funding for measures that minimize (mitigate) the potential adverse impacts on the riparian and estuarine/beach ecosystems shall be identified as part of these future proposed actions during the planning process and shall be secured prior to initiation of such actions.
  - (d) Restore riparian and estuarine/beach areas temporarily disturbed due to non-routine maintenance and construction activities to original or better condition, including: A combination of exotic vegetation control and vegetation management (including replanting if necessary) that will permit native species to regenerate in a timely manner (approximately 3-8 years). This method is to be implemented on areas temporarily disturbed during project construction, or affected by non-routine maintenance, fire, or other activity. This restoration shall include weeding and monitoring of affected areas for a minimum of 3 years. Rehabilitation of natural (non-weedy) areas disturbed by construction shall use the original topsoil to the maximum extent practical. Salvaging of native vegetation shall be implemented where feasible. In addition the Base

shall mitigate for the disruption and temporary loss of habitat function by performing habitat enhancement per the compensation formula specified in the Base's Riparian Ecosystem Conservation Plan (section 11.5.4 of Appendix 1).

- (e) Once exotic vegetation has been removed from the floodplain as a mitigation measure, the Base shall assure that the enhanced area remains free of recolonization by exotic vegetation for a minimum period of 5 years. Thereafter the Base shall make a reasonable effort to maintain the enhanced status of the area consistent with the goals of the ecosystem conservation plans.
  - (f) Treat any future action which is not described in the Project Description and which may result in a permanent loss of riparian wetland, no matter its quality, as a Class II or Class I activity,<sup>1</sup> requiring informal consultation with written concurrence from the Service or initiation of formal consultation with the Service pursuant to section 7 of the Act.
2. To assure the implementation of reasonable and prudent measure #2 above, the Marine Corps shall:
- (a) Adopt and implement the Estuarine/Beach Ecosystem Conservation Plan, as specified in Section 4.2 and 4.3 of the BA and outlined in the Project Description (Appendix 1) of this BO, and as modified in Appendix 5, including the programmatic instructions to regulate all training & other mission-related operations, Base infrastructure maintenance, and recreational activities, that affect estuarine/beach habitats on Base.
  - (b) Obtain concurrence from the Service that impacts are adequately offset by the Estuarine/Beach Ecosystem Conservation Plan for any activity not specifically addressed in the Programmatic Instructions or otherwise covered herein.
3. To assure the implementation of reasonable and prudent measure #3 above, the Marine Corps shall:
- (a) Institute a monitoring program to assess the progress toward the accomplishment of the ecosystem, habitat and species goals specified in the Base's riparian and estuarine/beach habitat conservation plans. The monitoring program shall be based on high resolution aerial photography, GIS maps/data, and ground-truthing techniques, and reliable population censusing

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<sup>1</sup> A programmatic albeit unorthodox method of dealing with actions which involve permanent loss of riparian habitat was mutually developed by the Base and the Service as reflected in section 13 of Appendix 1 of this Opinion. Such an approach was predicated on the Base being able to project that exotic vegetation could be eliminated in incremental stages over a 40-year period. The Marine Corps, however, was unable to offer a sufficient level of assurance in this regard due to budgetary constraints that prohibit commitment of funds in out-years. If this option is pursued in the future, it will benefit from coordination with the U.S. Army Corps of Engineers and the Environmental Protection Agency.

methods. The minimum requisite elements of this monitoring program are specified in Appendix 4.

- (b) Identify and notify by way of periodic correspondence proposed program and monitoring adjustments (adaptive management) needed to achieve the goals and meet management objectives. These adjustments shall be submitted to the Service on at least an annual basis during the fourth quarter of each calendar year. A follow-up meeting shall occur between the Base and the Service within 60 days of receipt of the notification but no later than January 31.
  - (c) The Base shall informally consult with the Service in developing the monitoring program to track the effectiveness of the exotic vegetation control program. At a minimum, this program shall employ aerial photography and ground surveys. Transects and monitoring control plots shall be used where deemed necessary for specific projects.
- 4. To assure implementation of reasonable and prudent measure #4 above, the Marine Corps, with assistance of the Service, shall assess the severity of threats to tidewater goby and arroyo toad posed by green sunfish, bullfrog, and other likely predators/competitors. If mutually deemed a threat of sufficient magnitude that may preclude attainment of recovery objectives on Base for these listed species, the Base shall implement specific control programs for invasive non-native plants and predatory animals.
- 5. To assure implementation of reasonable and prudent measure #5 above, the Marine Corps shall:
  - (a) Continue to examine with the Service and other appropriate regulatory agencies the environmentally (biologically) least damaging alternative in the further planning stages of all proposed activities considered herein potentially resulting in the permanent loss of riparian and estuarine/beach habitats, including the SMR Flood Control - Construction Flood Levee/Wall Project.
  - (b) Assure that whichever alternative is selected is designed to reduce loss of endangered species habitat and wetlands/floodplains to the maximum extent feasible. The Service shall review and concur with the final SMR flood control structure design and construction footprint prior to initiation of construction in order to design management capability and assure the maintenance of endangered species habitat isolated behind the flood control structure.
  - (c) Assure that the extent of any clearing of riparian woodland/scrub outside the footprint of the flood control structure is minimized to the maximum extent feasible. The Service shall review and approve any clearing or other modification of riparian vegetation associated with the maintenance and operation of the flood control structure prior to any such disturbance.

- (d) Restore the functional value of wetland habitat currently dominated by *Arundo* to offset the permanent loss of listed species habitat resulting from all activities covered in the proposed action at a 3:1 ratio; and adopt any additional habitat replacement requirements deemed necessary through applicable Federal wetlands policies and the U.S. Army Corps of Engineers 404 regulatory program. The area from which the *Arundo* is removed shall be revegetated to a point that it replaces the endangered species value of the permanently disturbed area. The restoration effort shall begin before or immediately upon approval of the individual activity/project and avoid the breeding season of the vireo and flycatcher. Since habitat dominated by *Arundo* is considered "wetland," creation of wetland is not being required. Consequently a grading and irrigation plan will not be necessary. However, a planting, monitoring and maintenance plan shall be required. These plans shall be approved by the Service.

The latter revegetation effort may be substituted by additional *Arundo* control; in this case the acreage of *Arundo* removed shall be at a 10:1 ratio.

- (e) Once exotic vegetation has been removed from the floodplain as a mitigation measure, the Base shall assure that the enhanced area remains free of recolonization by exotic vegetation for a minimum period of 5 years. Thereafter the Base shall make a reasonable effort to maintain the enhanced status of the area consistent with the goals of the ecosystem conservation plans.
6. To assure the implementation of reasonable and prudent measure #6 above, the Marine Corps shall develop and implement a monitoring program that includes the minimum requisite elements described in Appendix 4. The monitoring program shall track and document:
- (a) Compliance with the provisions of the Base's ecosystem programmatic instructions;
  - (b) Compliance with the authorized take, measures and terms and conditions of the Incidental Take Section of this Opinion.

Unless otherwise specified herein, incidents of non-compliance shall be reported in writing to the Service within one working day.

#### **MONITORING PROGRAM (APPENDIX 4)**

The following guidelines shall be used to develop a monitoring program:

- (1) The monitoring program will be designed to determine:

- Attainment of management objectives in the programmatic ecosystem conservation plans;
  - Compliance with the provisions of the Base's ecosystem programmatic instructions, and the Service's reasonable and prudent measures and incidental take statement;
  - Adjustments needed to achieve management objectives and compliance with terms and conditions of this Opinion.
- (2) The monitoring program will be based on high resolution aerial photography, GIS maps/data, and ground-truthing techniques, and reliable population census methods.
- (3) The monitoring program will:
- Track plant community distribution, habitat function and value, listed and candidate species' distribution and status.
  - Provide Service with all applicable digital GIS data for biological resource mapping on Base [existing survey, topography, vegetative layers, etc.] for input onto the Service GIS system in 1995.
  - Monitor habitat status by providing the Service color aerial photography at appropriate scale and quality of all drainages on Base, including coastal areas, every 2 years (or as mutually modified in the course of annual program review), starting in 1996. The Base will supply copy prints of the September 1994 photos used for the current vegetation mapping done on Base.
  - The Base will continue its groundwater monitoring in all drainages where groundwater is extracted to determine and manage the potential effect on listed species habitat.
  - The Base will monitor stream water quality, flood regimes, and storm event frequency.
  - The Base will monitor the effects of sedimentation in SMR Estuary and coastal lagoons which are subject to upstream disturbance from programmatic and construction activities addressed in this Opinion.
  - The Base will continue to monitor the SMR Estuary for water quality and tide level and document the periods when the other coastal lagoons are subject to tidal influence.
  - The Base will provide annual surveys for the vireo and flycatcher. Annual population levels will be calculated and locations mapped. Vireos and flycatchers will be surveyed for by detecting singing males.

- The Base will provide an annual report of animal damage control, predator management, and cowbird control activities on Base. This report will note the species, both native and exotic, affected by these management activities. In addition, the location by drainage, the numbers trapped or dispatched or translocated will be noted. Exotics noted will include brown-headed cowbird, bullfrog, green sunfish, bluegill, mosquito fish, largemouth and smallmouth bass, and others as appropriate for purpose of adaptive management of riparian and estuarine/beach ecosystems.
  - The Base will monitor the population status of the tidewater goby on Base at least every three years.
  - The Base will provide breeding population estimates and reproductive success of tern and plover on the Base on an annual basis.
  - Provide for submission to the Service annual reports involving each of the monitoring activities.
- (4) The monitoring program will:
- Track the occurrence of accidents and unauthorized activities in riparian and estuarine/beach ecosystems on Base. These events will be reported to the Service within 24 hours.
  - Develop a tracking system that records the level of on- going programmatic activities in order to document trends in the frequency, magnitude, and extent of these activities on an annual basis.
  - Track the early planning phases of future activities, including major training exercises, and construction projects in order to assure the implementation and compliance with programmatic instructions and early consultation with the Service if appropriate.

## **TERMS AND CONDITIONS - DETAIL (APPENDIX 5)**

The following terms and conditions have been developed in order to implement the reasonable and prudent measures set forth in the Incidental Take section of this Opinion. Several of these terms and conditions enhance or otherwise add to the basic elements of the Base's ecosystem conservation plans described in the BA and Appendix 1 of this Opinion, including the goals, programmatic instructions and mitigation protocol.

### **General**

- The Base shall assure that project proponents consult with AC/S,ES staff early in the planning process, and that priority is given to the siting of proposed projects in areas that are not in riparian or estuarine/beach habitats.

- Where there are discrepancies between the project description, including the ecosystem conservation plan, as specified in the BA and the project as described in the Project Description section and Appendix 1 of this Opinion, the description in the latter shall take precedence. The Project Description section and Appendix 1 of this Opinion were developed mutually between the Base and the Service and reflect in many instances a modification and refinement of the project as originally described in the BA.
- Excessive noise (above 60 dBA leq hourly) related to all Base activities in or adjacent to riparian areas shall be avoided and minimized year round, but particularly during the breeding season. Noisy activities shall be concentrated spatially and temporally, particularly during the breeding season, to the maximum extent practical.

### **On-going and Planned Training**

- The Base shall comply with the programmatic instructions enumerated in Section 4.1.3.1 of the BA.
- Vehicle traffic occurring at night on roads in potential arroyo toad habitat during the period of 15 March through 1 July shall be minimized to the maximum extent possible.
- Vehicle traffic in undeveloped crossings in potential arroyo toad habitat during the period of 15 March through 30 August shall be minimized.
- Dust produced in or adjacent to riparian areas shall be minimized to the maximum extent practical.
- The Base shall assure that aircraft operations shall be conducted not lower than an altitude of 300 feet AGL over vireo and flycatcher occupied riparian areas, to the maximum extent practical. The following aircraft operations are exceptions:
  - \* When landing and take-off from designated CAL, LZ, VSTOL, TALA/HOLF and airstation runways;
  - \* When operating under the control of the tower in an airport traffic area;
  - \* When complying with regulations related to operations, weapons delivery profiles, emergencies, special visual flight rule (VFR) conditions;
  - \* Low-level flight (100-200 feet AGL) operations required by the mission and when operating, training or exercising contour and nap of the earth tactics (0-100 feet AGL) along designated TERF routes.
- The Base shall assure that helicopter use at TALA is minimized between 0600 and 1100 during the breeding season to the maximum extent practical.



### **Infrastructural Maintenance**

- The Base shall comply with the programmatic instructions enumerated in Section 4.1.3.2 of the BA.
- The Base shall assure that no engineering, grading, or filling activities in riparian areas occurs without prior approval from the AC/S,ES.
- Secondary roads shall be maintained to the extent practical in order to avoid ponding of water on the road surface in and adjacent to potential arroyo toad habitat.

### **Proposed and New Construction**

- The Base shall comply with the programmatic instructions specified in Section 4.1.3.3 of the BA.
- Sediment runoff shall be contained on construction sites through the use of siltation fences, hay bales, sand bags, silt ponds, or other methods as determined by AC/S,ES.
- Dust produced in or adjacent to riparian areas shall be minimized. Measures (such as chemical treatment) used on the ground surface to minimize dust shall be biologically sound.
- All riparian and estuarine/beach areas temporarily disturbed by construction activities will be treated for a minimum of 3 years post-construction to control the establishment of exotic vegetation within the cleared or otherwise disturbed area.
- The Base shall assure the implementation of biological monitoring and reporting during construction activities occurring in or adjacent to riparian and estuarine/beach areas.
- The Base shall assure the placement of signs indicating the necessity for all activities to be strictly confined to the project site.
- The Base shall assure that construction site boundaries are clearly delineated on the ground by flagging, survey lath or wooden stakes.
- The Base shall assure that all construction project personnel are briefed by the prime contractor(s) during all project phases regarding the potential presence of listed species, the requirements and boundaries of the project, the importance of complying with measures designed to avoid and minimize adverse effects to listed species potentially resulting from project activities, and problem reporting and rectification.

## **Recreational Activities**

- The Base shall comply with the programmatic instructions specified in Section 4.1.3.4 of the BA.
- The Base shall assure that recreational activities are designed, organized, implemented, and regulated in such a way so as to avoid and minimize impacts to listed species to the maximum extent possible. All proposals for new recreation (and modifications of existing program activities) shall be reviewed by AC/S,ES personnel for compliance with this term and condition. Ongoing activities that may result in take of listed species shall be reviewed on an annual basis.

## **Ecosystem Conservation Program**

### **RIPARIAN PLAN**

- The breeding season for the vireo and the flycatcher shall be designated from 15 March to 31 August. The non-breeding season shall be defined as 1 September to 14 March.
- The breeding season for the arroyo toad shall be designated from 15 March to 15 June. Juvenile maturation shall be designated to extend an additional 8 weeks, that is, until 15 August. The non-breeding/non-maturation period shall be designated from 16 August to 14 March.
- The Base shall comply with the programmatic instructions specified in Section 4.1.3.5 of the BA and section 11.6 of Appendix 1 of this Opinion.

### **MONITORING**

- The Base shall share data from the on-going herpetological inventory with the Service as it becomes available.
- The Base shall monitor habitat status by providing the Service color aerial photography at Service approved scale and quality for vegetation mapping of all drainages on Base every 2 years (1996, 1998, etc).
- The Base (or the Base in partnership with the Service) shall facilitate the annual monitoring of species population levels for vireo, flycatcher, and arroyo toad on Base. Determinations of species population trends shall be an integral part of the overall monitoring program.
- The Base (or the Service in partnership with the Base) shall facilitate the monitoring of floodplain and habitat acreage within the major drainages on Base. Determinations of achievement of acreage goals shall be an integral part of this monitoring.

- The Base shall prepare and submit to the Service for review and comment an annual report. This report shall include:
  - A general summary of all projects that have been initiated on Base within the one year reporting period and will include:
    - A list of projects which implemented the provisions of this biological opinion;
    - The total acreage of listed species habitat lost or disturbed;
    - A summary of the effectiveness of take minimization measures; and
    - A discussion of any problems encountered.
  - A specific summary of each project undertaken. This report will detail:
    - Project name,
    - Project description,
    - Project location (map),
    - Total acreage of the project,
    - Acreage of listed species habitat lost and its relative condition,
    - Measures taken to ensure that "take" has been minimized or eliminated,
    - Total number of listed species that were taken, through injury, mortality, or harassment,
    - Data on take, if it occurs, and
    - Any problems encountered with respect to implementing the provisions of the management plan.

#### **ESTUARINE/BEACH PLAN**

- The Base shall develop additional programmatic instructions designed to minimize to the maximum extent practical the take of western snowy plover potentially resulting from activities in the French Creek and Aliso Creek Lagoon areas.

- The breeding season for the snowy plover and least tern shall be designated 1 March through 15 September. The non-breeding season shall be defined 16 September to 28 February.
- The management actions specified in section 12.4.2 of Appendix 1 shall be implemented within a reasonable time frame. The implementation status of these proposed actions shall be reviewed on an annual basis.
- The Base shall adjust the Estuarine/Beach Ecosystem Conservation Plan to reflect the findings resulting from the multi-year study of the effects of tern management on snowy plovers.
- The Base shall implement the following strategies to maintain the beach/estuary ecosystem and support viable, expanding populations of sensitive species:
  - New activities that could cause degradation to coastal wetlands, including reductions in water quality, and sensitive dune areas shall be considered a Class 2 activity.
  - Conservation measures currently in place as a result of the LCAC FEIS shall continue including the “off-limits” status of the Santa Margarita River Estuary (except as modified by this Opinion), and the protection and management of the Cocklebur sensitive area.
  - The conservation plan shall be updated as recovery plans for listed species are published so conservation efforts are consistent with recovery goals.
  - Information to Base personnel regarding sensitive species and restricted areas along the coastal areas shall be provided by publishing Base notices and establishing an interpretive kiosk for the Del Mar Beach recreational area.
  - Least terns and snowy plovers shall be monitored on an annual basis to determine number of pairs, hatching success, and reproductive success in order to assess the effectiveness of the conservation plan.

The Base shall assure that the following instructions shall be complied with to avoid and minimize impacts to estuarine ecosystems and listed species:

### **Military Training Activities**

- During the tern and plover nesting season, the Base shall publish instructions which restrict aircraft from operating at an altitude below 300 feet AGL over the SMR plover management zone and the White Beach nesting area (see paragraph 12.4 of Appendix 1), except operations involving landing or taking off from LZ 21, maneuvering to avoid aircraft flying in FAA controlled airspace not subject to the restrictions of Airspace Restricted Areas R-2503A and B, and complying with regulations related to operations,

emergencies, special visual flight rule (VFR) conditions (i.e., when weather conditions dictate a lower altitude must be flown for safe flight of the aircraft).

- Helicopter landings at Del Mar (LZ21) shall be minimized during the least tern/snowy plover breeding season to the maximum extent practical.
- Foot traffic in coastal lagoons and the Santa Margarita River Estuary shall be minimized to the maximum extent possible.
- Military and recreational activities will be kept to a minimum within the management zone during the non-breeding season in order to minimize disturbance to wintering snowy plovers.

### **New Construction Projects and Activities**

- Future proposed construction projects that could result in the permanent loss of coastal wetland and major changes to current training activities that may affect listed species along the beach/estuary shall require informal or formal consultation with the Service (as a Class II or Class I activity).

### **Recreation Activities**

- The Base shall develop programmatic instructions and measures to assure that recreational foot traffic, including fishermen, remain outside the nesting and foraging areas of the SMR management zone during the breeding season.
- Recreational activities shall be kept to a minimum within the management zone during the non-breeding season.
- Litter shall be deposited in proper disposal bins.

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